**GAS LAW PROBLEMS**

1. A sample of gas has a volume of 140.0 mL at 67°C. To what temperature must the gas be lowered to reduce its volume to 50.0 mL at constant pressure?
2. A sample of hydrogen at 47°C exerts a pressure of 250 mm Hg. If the gas is heated to 77°C at constant volume, what will the new pressure be?
3. To what temperature must a sample of nitrogen at 21°C and 0.562 atm be heated so that its pressure becomes 1.081 atm at constant volume?
4. If the pressure exerted on a 240 mL sample of hydrogen gas at constant temperature is increased from 325 mm to 550 mm, what will be the final volume of the sample?
5. A flask containing 155 cm3 of hydrogen was collected under a pressure of 22.5 kPa. What pressure would have been required in order for the volume of the gas to have been 90.0 cm3 at constant temperature?
6. At standard temperature a gas has a volume of 275 mL. If the temperature is increased to 130°C but the pressure is held constant, what is its new volume?
7. A sample of gas at 47°C and 780 mm Hg pressure occupies a volume of 2.20 L. What volume would this gas occupy at 109°C and 600 mm Hg pressure?
8. A 350 mL air sample collected at 35°C has a pressure of 550 mm Hg. What pressure will the air exert if it is allowed to expand to 425 mL at 53°C?
9. A gas measures 1.75 L at -22°C and 150 kPa. At what temperature would the gas occupy 1.30 L at 210 kPa?
10. A sample of oxygen at 40°C occupies 320 mL. If this sample occupies 1250 mL at 60°C and 1.40 atm, what was its original pressure?
11. Three of the components of air are carbon dioxide, nitrogen, and oxygen. In a sample containing a mixture of these gases at one atmosphere of pressure, the partial pressures of carbon dioxide and nitrogen are 0.285 mm and 593.525 mm respectively. What is the partial pressure of the oxygen?
12. Determine the partial pressure of oxygen collected by water displacement if the water temperature is 20.0°C and the total pressure of the gases in the collection bottle is 730.0 mm Hg.
13. A sample of gas is collected over water at a temperature of 35°C when the barometric pressure reading is 742.0 mm Hg. What is the partial pressure of the dry gas?
14. If a sample of oxygen that occupies 1.00 x 106 mL at 575 mm Hg is subjected to a pressure of 1.25 atm, what will be the final volume of the sample if the temperature is held constant?
15. If the pressure on a gas at -73°C is doubled but its volume is held constant, what will its final temperature be in degrees Celsius?